ABSTRACT OF THE DISCLOSURE

Embodiments of the invention provide a three-dimensional nanotube structure. For one embodiment, a connector molecule is created that has bonding sites capable of bonding with one end of an open-ended nanotube segment and bonding sites capable of bonding with the corresponding bonding sites of a plurality of other connector molecules. For one embodiment, the connector molecule is cone-shaped, with base of the cone determined so as to bond with the edge of the open-ended nanotube and the point of the cone comprising a single molecule capable of bonding with the corresponding molecules of two or more other connector molecules. In one embodiment, the three-dimensional nanotube structures are incorporated into a polymer matrix to form a composite polymer having improved thermal conductivity. For one embodiment, the composite polymer is used to form efficient and cost-effective heat dissipation devices.